Vector Arithmetic (Section Formula)

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Question:
Points $\mathbf{A}\,(-6, 10)$, $\mathbf{B}\,(-4, 6)$ and $\mathbf{C}\,(3, -8)$ are collinear such that $AB = \frac{2}{9}AC$.

Solution: Using section formula,

$$\mathbf{B} = \frac{1}{1 + \frac{2}{7}}\left(\begin{pmatrix} -6 \\ 10 \end{pmatrix} + \frac{2}{7}\begin{pmatrix} 3 \\ -8 \end{pmatrix}\right) = \begin{pmatrix} -4 \\ 6 \end{pmatrix}$$

Hence proved.